How are Australian higher education institutions contributing to change through innovative teaching and learning in virtual worlds?

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<th>Brent Gregory</th>
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• Assessment
• Collaboration
• Communication
• Engagement
• Stepping-stones
• Simulation
Assessment

• Marking can be automated
• Conducting assessment tasks when other barriers are in play
• UniAd have established ‘Transforming Assessment’ island in SL as a resource for academics to improve VW assessment activities
• Marking can be automated
• Conducting assessment tasks when other barriers exist
• 'Transforming Assessment' (UniAd) island in SL is a resource to demonstrate VW assessment activities
Student visions of sustainable architecture
Collaboration

• VWWG - members have produced over 300 articles on virtual worlds
• List of publications at virtualworldsworkinggroup.wikispaces.com
• Overcoming the tyranny of distance
• Increased collaboration and networking - students, staff and international
• Cross-disciplinary
• Cross-institutional
• Cross-border research
• International collaboration on research and
• We are not aware of any similar collaboration internationally with the exception of academics from New Zealand universities who are part of this group
Teaching and research activities since 2007

- Faculty of Pharmacy & Pharmaceutical Sciences
- Faculty of Arts - Chinese Studies
- Faculty of Arts - Behavioural Studies
- Faculty of Education – Instructional design and theory
- Faculty of Law – Intellectual Property
- Five Islands (sims)

Behavioural Studies - Digital Selves

- Theoretical and applied understanding of the implications of working, socialising and learning in online environments
- Skills necessary to flourish in virtual and mixed realities.

Chinese Studies

Bringing language learning alive

- High fidelity virtual Chinese language and culture environment
- Task-based, contextualized learning
- Blended learning within traditional curriculum

Pharmacy and Pharmaceutical Science

Pharmatopia – an international virtual world collaboration

- Twelve international schools of pharmacy
- Moved to Open Sim in Jan 2011
- Five learning modules completed, two more under development
- ~ 500 students each year use modules
- Commercial development of modules for pharmaceutical industry for global training
• At the heart of what virtual worlds do
• Synchronous and asynchronous communication
  – EG Traditional Lecture
• Demonstrate student work
• Machinima
• Communicate something about who they are
  – UWA & SCU - mirroring physical presences
  – Deakin - visual arts - appealing use of colour and light
"I think you can get clarification on a lot of issues too ... sometimes its very difficult to actually work out what you’re doing, as a DE student ... To be able to talk that over with your lecturer or with your fellow students is a huge bonus".
Augmented "in-world" synchronous and asynchronous learning sessions and conventional "real world" workshops, tutorials and e-learning materials; support a move from directed instruction to collaborative interactive group learning, a community of learners. Learning scenarios within a constructivist framework encourage collaborative engagement between students to actively engage with and use new technologies.
Engagement

- Engagement is multidimensional
- Students have a sense of energetic and effective connection with the activities they are undertaking
- ‘high level of engagement in virtual world-based activities by young male construction students’
- Increased participation
- Increased interaction
- Greater willingness to share
- Virtual worlds - increased sense of ‘being there’
University of New England

Role-Play

Web Quests

Lectures

Engagement

Tour

Discussion

Excursions
University of Canberra

http://slurl.com/secondlife/Telework/54/47/30

Telework Island, Second Life
Students engage within the fictional world of Shakespeare’s Macbeth, role-playing and interacting within Macbeth’s headspace, to develop an understanding of Macbeth’s changing psyche throughout the trajectory of the play.
• Overcome barriers
  – Physical
  – Cultural
  – Geographic
  – Psychological
  – Financial
• Examples
  – reducing performance anxiety
  – supporting international students
  – students with a disability to increase confidence and participation
  – create a virtual support centre - provides skill development opportunities and solutions for the users
• Several institutions - use virtual worlds to eliminate many of the social and cultural barriers to engagement in the classroom
Simulations

• Rich tapestry of opportunities for educators
  – mock trials
  – virtual pharmaceutical compounding dispensary (UQ)
  – pharmaceutical virtual laboratory (Monash)
  – defence (UniSA, CSU, USQ)

• Enable educators to:
  – add lifelike contexts to learning
  – contextualise otherwise abstract and dry education principles
Employability skills development

Career resource access
University of Western Sydney

- Historically authentic simulation of the ancient Sumerian city (city of Uruk, 3000 B.C.)
- Students learn history and culture through interactions with A.I. controlled avatars
Challenges

- Bandwidth and computer hardware - LAG
- Software needs to be downloaded on a computer
- Basic skills needs to be acquired (movement and communication)
- Institutional constraints (e.g. firewalls) and financial constraints.
- Virtual world work initiated on minimal budgets by motivated academics

How have these challenges been overcome?
- Upgraded computer
- Technical support
- professional development
- immersive learning experiences
- Research
- professional literature
- Support from senior management
- development of appropriate non-player characters to assist with teaching and designing of pedagogy, lessons and tasks
- Collaboration with other institutions provided professional development, guest lecturers or join forces during lessons with students.
- external assistance such as machinima and non-player characters to assist with their lessons
- many members of the VWWG are migrating to other VW platforms.
Questions?
Other Examples of Communication
Qld Uni of Technology
Communication, simulation and engagement –
Machinima at QUT

Air Gondwana (negotiation skills)

Entry into Valhalla (legal ethics)

Sapphire Vortex (criminal law and procedure)
“Whatever you can do or dream you can, begin it. Boldness has genius, power and magic in it. Begin it now”

Johann Wolfgang Von Goethe
“I think it has the ability and the potential to make ... study really, much more rewarding and engaging, and I would love to be experimenting with it in further subjects.”
• Worked with virtual worlds since 2006
• Focus - disengaged young people (school & VET)
• Platforms over time: Second Life > Skoolaborate > OpenSim > Unity
  • custom open source LMS
  • systems developed now being deployed & improved by Monash University (Pharmatopia), C.I.T. (Nursing), GlaxoSmithKline
• Now working with:
  • construction pre-apprentices (VET)
  • young people with Aspergers Syndrome
• Have worked with:
  • hairdressing apprentices (VET)
  • multimedia students (VET)
  • disadvantaged high school students
  • grammar school students
University of Ballarat
Examples of Simulation
Collaboration and simulation at QUT

QUT Space Station
(School of Learning Design)

Landscape architecture
(School of Learning Design)
Expanding the boundaries of experiential learning

Virtual control lab with simulated virtual plant

Class room and lab discussions in the virtual world

A meeting point

Virtual lecture room

Learning concepts through 3D visualisation

Virtual distillation lab with visualisation of column internals

Tapping the potential of virtual worlds to augment experiential learning through visualisation and dynamic simulations.